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Migration statistics in Switzerland: New sources and challenges

Prepared by the Swiss Federal Statistical Office

Summary

This paper discusses a number of issues related to the availability of new migration data sources in Switzerland and the collection of migration core variables through the population and housing census. The paper examines the meaningfulness of selected census variables for migration analyses and compares, for example, the census core variable 'place of usual residence one year prior to the census' with annual migration flow data. Several data sources allow the identification of population groups relevant to international migration, for instance population registers, census sample survey, and the labour force survey. This paper considers whether these different data sources yield the same results and how to deal with conflicting data.

The paper is presented for discussion to the Conference of European Statisticians seminar on migration statistics.

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I. Introduction

1. Migratory movements which are generally increasing in both complexity and volume constitute an important factor of demographic and economic growth in many countries. International migration is a topic that constantly draws attention from policy makers, the media, the research community as well as the general public. Comprehensive and reliable statistics on migration are therefore required to address these user needs.

2. The flows and stocks of migrants are the two more frequently used concepts in measuring migration. Migration flows represent the movements of persons to or from a country or a territorial division during a given period of time. The migrant stock identifies the part of the population with a migration background staying in a country or a territorial division at a given moment of time. Measures of international migration are typically derived either from census and survey data or from data from administrative sources.

3. This paper discusses a number of issues related to the availability of new migration data sources in Switzerland and the collection of migration core variables as outlined in the *Conference of European Statisticians (CES) Recommendations for the 2010 censuses of population and housing*. The main objectives are twofold: to present some new findings as well as still existing gaps and challenges in Swiss migration statistics and to provide a critical appraisal of the intended purpose of two of the suggested core migration variables.

4. The section II of the paper briefly describes the new register-based census in Switzerland and its contribution to the collection of migration data. The section III explores three aspects of international migration statistics: (1) the number and characteristics of ever-international migrants living in the country, (2) the analysis of the mobility question about the place of residence one year ago, and more specifically, a comparison of annual migration inflows derived from stock data and register-based flow data, (3) the identification of population groups relevant to international migration according to different data sources. Finally, some general conclusions are presented in the last section of the paper.

II. The new Swiss census system

5. In Switzerland, the traditional decennial census – based on a full field enumeration, with information collected using census forms – has been replaced by an integrated statistical system which provides annual data. The new census system combines the use of administrative registers with sample surveys. The move to annual data availability allows for regular monitoring of the population structure and its changes. The first reference day for the new census was on 31 December 2010.

6. The new system consists of four different annual surveys, among them – and of particular importance to migration statistics – the register survey and the new large-scale structural survey. The register survey exploits existing and harmonized administrative data from both centralized and local population registers: (1) alien registers maintained by the Federal Government covering non-nationals living in the country and (2) municipal or cantonal registers of the resident population. Additionally, data from the Federal Register of Buildings and Dwellings enable analyses at a very detailed geographical level. The structural survey is an annual sample survey of 200,000 people. It includes variables traditionally collected by the census but not currently available in registers, thus complements the register survey. It covers people living in private households who are aged 15 or over and involves the self-completion of paper questionnaires or on the internet by respondents.

7. The social security number which uniquely identifies a person plays an important role both in the maintenance of administrative registers and in their statistical use, particularly in linking information from register and survey data[1].

8. The new census system provides previously unavailable information about the stock of immigrants and other persons with a foreign background, and also on the timing and the geographical patterns of their migration. It is useful for capturing migration since data are available on an annual basis and not only at intervals of five or ten years, as in a traditional census. Due to its primary reliance on administrative data it is particularly well suited for producing data on migration flows: Registers are dependent on the timely registration of the population and keep track of all changes of residence, thus ensuring a continuous update of individual records. For this paper, data from the first three years of the new combined census (2010-2012) were analyzed.

III. Three selected issues related to Swiss migration statistics

9. This chapter discusses three aspects relevant to migration statistics. It focuses on three core variables of the CES 2010 census recommendations[2], explains how this information is collected by the Swiss Federal Statistical Office (FSO), presents the most recent findings and addresses some major challenges linked to the available data and the purported relevance of the core migration variables.

A. Ever-international migrants

10. The *Recommendations on Statistics of International Migration*[3] define an international migrant as 'any person who changes his or her country of usual residence'. In order to identify and quantify the stock of ever-international migrants in a country, i.e. the set of persons who have ever changed their country of usual residence, the CES recommendations include the core topic 'ever resided abroad and year of arrival in the country' (§§ 379-381).

11. To collect information on this topic, individuals should be asked whether they have ever had a usual residence abroad. For those who ever resided abroad, the year of last arrival in the current country of residence, should also be collected. It should be noted that this variable does not provide any information on the previous place of usual residence (and year of arrival in the current place). Moreover, it cannot identify people who have established residence in the country on more than one occasion.

12. In the annual Swiss structural survey the following question is asked: 'Have you ever lived for at least one year continuously in a country other than Switzerland?' Respondents can reply either no or yes. In the affirmative case, the year of last arrival (or return) to Switzerland must be indicated.

13. According to the 2010 and 2011 structural surveys about one fifth of all permanent residents of Switzerland are ever-international migrants. (2010: 22.0 per cent; 2011: 18.9 per cent). This corresponds to about 1.2 to 1.4 million individuals. However, as up to half

[1] The Federal Statistics Act of 1992 (art. 14a) sets the legal framework for any data linkages carried out by FSO.

[2] UNECE, Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing, United Nations, New York and Geneva, 2006 (Chapter VIII. International and Internal Migration, pp. 83-93)

[3] UNSD, Recommendations on Statistics of International Migration – Revision 1, Statistical Papers, Series M, No. 58, Rev. 1, United Nations, New York, 1998 (§32)

of the foreign-born declared – somewhat surprisingly – to have never resided abroad for at least one year, this percentage is definitely too low. According to the CES recommendations the group of ever-international migrants includes all foreign-born as it is assumed that they all resided or were expected to reside in the country of birth for at least one year (§365). Obviously, a significant number of respondents did not understand this question correctly. The share of foreign-born who answered illogically even increased from 36.7 per cent in 2010 to 50.6 per cent in 2011. Adjusting the data by assigning a migration background to all foreign-born, the share of ever-international migrants currently living in Switzerland is estimated to be about 34 per cent[4].

Table 1

Permanent resident population who ever resided abroad by country of birth, 2010 and 2011

Country of birth	*2010*		*2011*	
	in 1000	*in %**	*in 1000*	*in %**
Total	**1436.1**	**22.0**	**1244.4**	**18.9**
Switzerland	362.1	7.8	356.6	7.7
abroad	1053.1	57.2	879.3	45.6
unknown	21.0	39.7	8.5	39.0

*of total population of each 'country of birth' sub-group

14. A more detailed analysis reveals that 71 per cent of all ever-international migrants were born abroad. Nationals and foreign citizens are represented equally (49.5 per cent and 50.5 per cent, respectively). Whereas 42.9 per cent arrived in Switzerland after 1999, 38.2 per cent between 1970 and 1999 and 12.3 per cent before 1970, the breakdown by country of birth (Switzerland/abroad) discloses significant differences between the two groups. Among the native-born 29.1 per cent arrived in Switzerland after 1999; this proportion is considerably higher among the foreign-born (48.4 per cent). Moreover, foreign-born ever-migrants are younger (45.1 per cent were born after 1970 and only 18.0 per cent before 1950) than their native-born counterparts (with only 28.4 per cent born after 1970 and one third born before 1950).

[4] Correcting the collected data in such a way is relatively straightforward. However, the year of last arrival is missing for all reallocated individuals.

Table 2

Ever-international migrants by country of birth and year of last arrival and year of birth*, 2011

	Country of birth	
Year of last arrival	***Switzerland***	***abroad***
before 1950	0.9	0.9
between 1950 and 1959	4.1	2.7
between 1960 and 1969	10.3	7.5
between 1970 and 1979	13.5	6.8
between 1980 and 1989	15.5	11.5
between 1990 and 1999	18.3	16.3
2000 or later	29.1	48.4
unknown	8.3	5.9
Year of birth		
before 1950	33.9	18.0
between 1950 and 1959	18.3	14.2
between 1960 and 1969	19.4	22.6
between 1970 and 1979	14.9	23.8
between 1980 and 1989	9.3	16.6
between 1990 and 1999	4.3	4.7

*as % of all ever-international migrants

15. The figures above clearly show that the group of ever-international migrants is very heterogeneous. Broadly speaking, two large groups can be distinguished: 'life-time migrants' and 'return migrants'. A 'life-time migrant' is a person whose current place of residence is different from his/her place of birth[5]. A 'return migrant' is a person whose current place of residence is the same as the place of birth, but whose duration of residence is less than his/her age. Specifically, the latter group comprises persons without a foreign background (according to the definition in §398 of the CES recommendations) who, however, have experienced an international migration (e.g. due to having worked or studied abroad for at least one year).

16. For any in-depth analysis this item has to be cross-referenced with other socio-demographic variables. However, a basic disaggregation by sex, current age and citizenship is not nearly sufficient to provide meaningful insights. Additional variables have to be taken into account, some of which (such as country of birth, year of last arrival, age at the time of arrival) are most likely available in population censuses. Others (such as reason of immigration or return migration, total duration of residence abroad), however, are usually not collected by censuses and are – as is the case in Switzerland – also not available in administrative registers. Ideally, individuals' entire migration histories would be known if a thorough analysis and portrayal of ever-international migrants were to be attempted.

17. The CES recommendations point out that this topic will better capture international migrants living in a host country as not all migrants can be identified from information collected by country of birth or country of citizenship alone. However, the group of ever-international migrants is so diverse that other variables commonly available in censuses or

[5] This term is admittedly somewhat ambiguous as 'life-time migrants' may not live outside their country of birth for their entire lives.

in most administrative registers, will hardly be sufficient for a comprehensive analysis and thorough understanding of this group.

B. Migration stock data versus annual migration flow data

18. The migration core topic 'previous place of usual residence and date of arrival in the current place' (CES recommendations, §§ 384-389) provides information on geographic and time patterns of migration moves to the current place of residence. In operational terms, this topic can be implemented in either an extensive mode (by enquiring into year and month of arrival in the current place of usual residence and the previous place of usual residence) or a reduced mode (by asking about the place of usual residence one year prior to the census).

19. In Switzerland, the reduced mode is employed and the information is obtained from population registers. A snapshot view of internal and international migration flows can be derived from this variable as it allows for the identification of persons who have changed their usual place of residence at least once in the last calendar year. The topic is primarily intended to allow patterns of recent immigration to be studied, especially in countries that do not collect complete annual flow data.

Table 3

Permanent resident population by place of residence one year ago*, 2010-2012

Place of residence one year ago	*2010*	*2011*	*2012*
same municipality	92.5	92.3	92.3
other municipality in the same canton	3.6	3.6	3.5
other municipality in another canton	1.4	1.5	1.4
abroad	1.3	1.3	1.4
not yet born	1.0	1.0	1.0
unknown	0.1	0.4	0.3

*as % of total population

20. Results from the register surveys of 2010, 2011 and 2012 show the extent of geographic mobility in Switzerland. In any given year, 92 per cent of the population lived in the same municipality as one year before and can be broadly classified as 'non-movers' (even though an unknown number of them would have moved to another dwelling within the same municipality[6]). About 5 per cent of all individuals changed their place of residence within Switzerland and are internal migrants. The share of the population who had immigrated to Switzerland from abroad during the calendar year under consideration amounted to 1.4 per cent.

21. As far as the annual number of immigrants from abroad is concerned, register-based stock data – more precisely, the variable 'place of residence one year ago' – reveal that 104,000 and 115,000 individuals arrived in Switzerland in 2011 and 2012, respectively. A large majority of them (slightly above 60 per cent) were citizens of an EU-27 or EFTA member state, 16 per cent were Swiss nationals and about 12 per cent possessed the citizenship of a non-European country.

22. Because the register survey also allows obtaining annual flow data, there is the possibility to compare annual international inflows based on both stock and flows. Register-derived flow data put the annual number of immigrants at a somewhat higher level: about

[6] The municipality is the smallest civil division identified in official Swiss migration statistics which do not measure the change of the usual address.

150,000 per year. As annual migratory movements are depicted more accurately by flow data, the findings indicate that stock data based on the person's previous place of residence one year ago underestimate the annual international inflows by 43 per cent in 2011 and by about 30 per cent in 2012. A breakdown by citizenship of the immigrants further shows that the undercount is significantly higher for non-European citizens (57.7 per cent in 2011 and 46.0 per cent in 2012) than for citizens of an EU-27/EFTA member state (39.1 per cent and 25.6 per cent, respectively). The figures for Swiss nationals correspond more or less to those of the total of all immigrants. Consequently, immigrants from outside of Europe account for a higher share of all immigrants in the flow data (+2 percentage points).

Table 4

Annual immigration flows according to stock and flow data, by citizenship, 2011 and 2012

Citizenship	*2011*		*2012*	
	stock data	*flow data*	*stock data*	*flow data*
Total	**104,137**	**148,799**	**115,103**	**149,051**
Switzerland	16,488	24,104	18,241	24,006
EU27/EFTA	63,359	88,152	72,061	90,495
other Europe	7,618	10,247	8,132	10,219
other continents	16,668	26,281	16,659	24,317

23. The specific reasons for these discrepancies would have to be analyzed in greater detail. However, it is generally agreed that stock (or census) data have some well-known limitations as a source of inflow data and show only selective aspects of the migratory process as they are focused on migrants rather than migration events. Only immigrants that are still living in the country at the time of the census are counted, thus excluding those immigrants that have emigrated before the census date (e.g. in the same calendar year). Additionally, stock data are not able to capture multiple migrations of one individual that occurred between two subsequent census counts (e.g. the increasingly important phenomenon of circular or repeat migration), and emigration cannot be measured at all. Data on stocks of immigrants, therefore, rather represent the cumulative effect of net migration flows over a certain period in the past. While an acceptable proxy if there are no or only incomplete flow data, stock data are not an adequate substitute to estimate inflows if annual flow data are available.

C. Population groups relevant to international migration

24. The CES 2010 recommendations provide an excellent and comprehensive overview of the different population groups that are relevant to the capture and the analysis of international migration. The two derived non-core topics 'persons with foreign/national background' (§§ 398-402) and 'population groups relevant to international migration' (§§ 403-405) present some useful analytical classifications. They are based on the two core topics 'country of birth' and 'citizenship' and the non-core topic 'country of birth of parents'.

25. In Switzerland, the classification of the population stock by country of birth, (current) country of citizenship, citizenship at time of birth and country of birth of parents (and/or a combination of those four variables) is used for a national typology of the permanent resident population according to its migration status. Two major groups can be distinguished: (1) persons without a migration background (which broadly corresponds to the 'persons with national background' of the CES recommendations) and (2) persons with a migration background (or 'persons with foreign background') which can be further sub-divided into first- and second-generation immigrants.

26. This classification has been very useful for a more comprehensive monitoring and analysis of the impact of international migration because the basic distinction between foreigners and nationals is hardly sufficient anymore. Since the variable 'country of birth of parents' is not available in the population registers, survey data has to be used to identify the population with a migration background. However, household sample surveys conducted by FSO usually cover people who are aged 15 or over (and live in private households). Thus the precise migration status of persons below the age of 15 cannot be determined.

27. 0- to 14-year-olds account for 15 per cent of the permanent resident population of Switzerland according to the register survey of 2012. A breakdown by citizenship and country of birth further reveals that this proportion is slightly higher than the above average for the native-born (18.7 per cent) and for foreign citizens (15.9 per cent). Especially noteworthy is the fact that 56.8 per cent of all non-nationals born in Switzerland are less than 15 years old. A broad guesstimate based on the available register data puts the proportion of 0- to 14-year-olds with a migration background at about 27 per cent. However, it excludes naturalized Swiss citizens and includes native-born foreign children whose parents were also native-born. In conclusion, it can be argued that under 15 year-olds with a migration background constitute a sizeable population group which is generally excluded from sample household surveys and about which migration-related knowledge is insufficient.

28. Data from two different sources can be used for the classification of the population stock by migration status: (1) the structural survey and (2) the Swiss Labor Force Survey (SLFS). Both ask for the parents' countries of birth. While the SLFS also inquires about 'country of birth' and 'citizenship' of the respondents, these variables are added to the structural survey dataset from population registers via the unique person identifier.

29. According to the SLFS of 2012 64.5 per cent of the permanent resident population aged 15 and over have no migration background, while 34.7 per cent of all adults have a migration background. For 0.8 per cent of the population the migration status cannot be ascertained due to missing or implausible answers to questions used for its determination.

30. The structural survey of 2011 leads to slightly different results: 62.8 per cent of the population above the age of 14 has a migration background and 34.0 per cent of them do not. The proportion of adults for whom migration status cannot be determined stands at 3.2 per cent and is thus 2.4 percentage points higher than in the SLFS.

31. The two surveys reveal more important differences for specific population sub-groups and/or when broken down by sex and age. For example, the number of native-born Swiss with two foreign-born parents is 47 per cent and that of second-generation non-nationals[7] 27 per cent higher in the SLFS than in the structural survey. On the other hand, the structural survey leads to a higher number of foreign-born nationals (+11.1 per cent).

[7] native-born foreigners with at least one parent born abroad

Table 5

Permanent resident population (age 15 and over) by migration status and data source*, 2011 and 2012

Population Group	*Labor Force Survey 2012*	*Structural Survey 2011*
persons without a migration background	**64.5**	**62.8**
foreign-born	1.0	1.1
native-born	63.5	61.7
persons with a migration background	**34.7**	**34.0**
foreign-born	27.6	27.9
non-nationals	19.3	19.5
nationals	8.3	8.4
native-born	7.1	6.1
non-nationals	2.8	2.2
nationals	4.3	3.9
migration status unknown	**0.8**	**3.2**

*as % of total population

32. As the two reference periods are different (end of 2011 and 2nd quarter of 2012, respectively) some of the discrepancies can be explained by the influence of migratory events of the first half of 2012. Nevertheless, the results of the two surveys – although not contradictory – pose some challenges for data dissemination and interpretation. Which are the 'correct' data? Should there be only one reference source for dissemination purposes? Or should divergent data be made available to users of official statistics? If so, how can the reasons of such differences be explained in a transparent and comprehensible way?

33. Survey information is not always perfect. Some types of problems like invalid values, contradictory answers to related questions or non-response are quite frequent and have to be taken into account when analyzing the data. Sample size and different modes of survey data collection (e.g. CATI vs. PAPI) are some of the explaining factors for inconsistent data from different surveys. It is therefore rather the rule than the exception that different national data sources provide different data for the measurement of the same migratory phenomenon.

34. While the designation of a survey as the only data source for a certain kind of information can avoid confusion among users, it may also be argued that different data sources serve different purposes. In Switzerland, the larger sample of the structural survey (200,000 as opposed to 126,000 in the SLFS) provides data for smaller population sub-groups or smaller geographical units (e.g. NUTS 3). The SLFS, on the other hand, enables to cross-classify migration characteristics with a myriad of socio-economic variables.

IV. Conclusions

35. Analyses of 2010-2012 data provided empirical evidence of some of the issues to be confronted with and the challenges related to the use of currently available Swiss migration data.

36. A key aspect of the new Swiss census system is the linking of data from population registers with data from an annual sample survey via the social security number. Information from both sources are thus combined and supplement each other. As a result, migration-relevant information is available more frequently and on a wider range of topics.

37. Stock data (either from traditional censuses or survey questions) provide more information than only the socio-demographic characteristics of population groups relevant

to migration who are present in a country at a given moment of time. They can also inform on the previous place(s) of residence, therefore enabling to identify (some) immigrants who arrived during a specific period of time in the past and contributing – to a certain extent – to the analysis of recent immigration. However, stock data are not particularly well suited for producing comprehensive data on migration flows as figures on in- and outflows are needed on a continuous basis in order to capture all relevant movements. Administrative sources are frequently able to do so despite some of their well-known drawbacks (e.g. statistical data collection is not a priority, definitions and coverage depend on legislation and administrative rules).

38. Sample surveys may not cover the total resident population, thus excluding certain population groups relevant to international migration. Efforts could be made to collect missing information either through expanding the survey universe or – if not feasible – identifying and exploiting alternative sources.

39. Since there is no single data source which provides a comprehensive picture of migration it is good practice to use multiple sources. While in some instances these sources will lead to the same findings, in other instances the details and trends may differ. However, this does not necessarily mean that one source is 'right' and another is 'wrong', or that one source is 'better' than another one. As a consequence, it may be useful to prioritize sources according to the required information (e.g. at a certain geographical level or in combination with other variables inherent to a particular survey). On the other hand, combining data from different sources to provide a coherent picture can be methodologically challenging due to variations in concepts and definitions.

40. Further work will be done at FSO to close some of the existing gaps and to improve the quality and availability of migration data. A specially designed national migration module will be attached to the Swiss Labor Force Survey of 2014 to complement the EU LFS ad hoc module on the labor market situation of migrants and their immediate descendants and provide previously unavailable data. Finally, a recently approved new National Centre of Competence in Research 'On the Move: The Migration-Mobility Nexus' will be devoted to the academic study of migration-related topics – with special emphasis on interdisciplinary and new innovative approaches and with substantial funding by the Swiss National Science Foundation. FSO will be closely involved in some of the research projects.